

CLAIMS

1. A system for removing mercury in exhaust gas, in which mercury is removed from exhaust gas of a boiler, characterized in that

5 an NH_3 decomposition catalyst for decomposing NH_3 flowing down from the outlet of said denitrification apparatus and a mercury oxidation catalyst for oxidizing mercury into mercury chloride on the downstream side of said NH_3 decomposition catalyst are provided between a
10 denitrification apparatus and a wet type desulfurization apparatus, and mercury having been oxidized into mercury chloride is removed by said wet type desulfurization apparatus.

2. The system for removing mercury in exhaust gas
15 according to claim 1, characterized in that
 in the mercury removing system in which heating means and a heat exchanger are provided between said denitrification apparatus and wet type desulfurization apparatus,

20 said mercury oxidation catalyst is installed at least at one location of between the downstream side of said NH_3 decomposition catalyst and the upstream of said heating means, between the downstream side of said heating means and the upstream of said heat exchanger, and between the
25 downstream side of said heat exchanger and the upstream side

of said wet type desulfurization apparatus.

3. The system for removing mercury in exhaust gas according to claim 1 or 2, characterized in that said mercury oxidation catalyst is a catalyst in which at least
5 one kind selected from a group consisting of TiO_2 , SiO_2 , ZrO_2 , Al_2O_3 and zeolite is used as a carrier, and at least one kind selected from a group consisting of Pt, Ru, Rh, Pd, Ir, V, W, Mo, Ni, Co, Fe, Cr, Cu and Mn is carried on said carrier as an active component.

10 4. The system for removing mercury in exhaust gas according to claim 1 or 2, characterized in that said NH_3 decomposition catalyst is a catalyst in which at least one kind selected from a group consisting of TiO_2 , SiO_2 , ZrO_2 , Al_2O_3 and zeolite is used as a carrier, and at least one
15 kind selected from a group consisting of Pt, Ru, Rh, Pd, Ir, V, W, Mo, Ni, Co, Fe, Cr, Cu and Mn is carried on said carrier as an active component.

5. A method for removing mercury in exhaust gas, in which mercury is removed from exhaust gas of a boiler,
20 characterized in that

said mercury removing method comprises an NH_3 decomposition process for decomposing NH_3 flowing down from a denitrification process and a mercury oxidation process for oxidizing mercury into mercury chloride on the
25 downstream side of said NH_3 decomposition process, which are

provided between said denitrification process and a wet desulfurization process, and mercury having been oxidized into mercury chloride is removed in said wet desulfurization process.

5 6. The method for removing mercury in exhaust gas according to claim 5, characterized in that
in the mercury removing method comprising a heating process and a heat recovery process, which are provided between said denitrification process and wet desulfurization
10 process,

said NH_3 decomposition process is carried out in a temperature zone of 300 to 450°C on the downstream side of said denitrification process, and

said mercury oxidation process is carried out at least
15 in one location of a temperature zone of 300 to 450°C on the downstream side of said NH_3 decomposition process, a temperature zone of 120 to 200°C on the downstream side of said heating process, or a temperature zone of 60 to 120°C on the downstream side of said heat recovery process.

20 7. The method for removing mercury in exhaust gas according to claim 5, characterized in that when said mercury oxidation process is carried out on the downstream side of said heating process, the temperature is controlled to a predetermined temperature in the range of 60 to 200°C.

25 8. The method for removing mercury in exhaust gas

according to claim 5 or 6, characterized in that the temperature in said mercury oxidation process is controlled by measuring the concentration of metallic mercury or mercury chloride in an oxidation catalyst outlet gas in said
5 mercury oxidation process.

9. The method for removing mercury in exhaust gas according to claim 5 or 6, characterized in that in said NH_3 decomposition process, NH_3 is treated so that the concentration of NH_3 at the outlet is 1 ppm or lower, and
10 then mercury is oxidized in said mercury oxidation process.